

S/N 10/776,531

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	Shirley Tzeng	Examiner: Vivek V Krishnan
Serial No.:	10/776,531	Group Art Unit: 2445
Filed:	February 12, 2004	Docket No.: 0063-127001/BU3385
Title:	SOURCE IDENTIFIER-BASED TRUNKING FOR SYSTEMS OF NETWORK DEVICES	

AMENDMENT AND RESPONSE UNDER 37 CFR § 1.116

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Applicant has reviewed the Office Action mailed on December 10, 2008. Please amend the above-identified patent application as follows.

Amendments to the Claims	p. 2
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AMENDMENTS TO THE CLAIMS

1. (Currently Amended) A method of handling frames in a network device, said method comprising:

receiving a frame at a first network device of an assembly of network devices, ~~with the assembly of devices divided into a first trunk group on a first side and a second trunk group on a second side, wherein the assembly includes a plurality of high-speed links connecting devices on the first side to corresponding devices on the second side, and wherein the first network device~~ [[being]] is on the first side and a member of the first trunk group;

~~determining-examining the received frame to determine~~ whether the frame is destined for a network device of the first trunk group or a second network device of the second trunk group member of a specific trunk group;

~~determining whether a destination device identifier for the frame corresponds to one of the network devices on the second side;~~

if the frame is destined for the second network device, forwarding the frame to the second side via a first high-speed link of the plurality of high-speed links connecting the first side to the second side, wherein the first high-speed link is local to the second network device-a trunk group destination port that is local to the network device if the frame is destined for a member of the specific trunk group and the destination device identifier corresponds to a network device of the second side; and

if the frame [[does]] is not destined for one of the network devices correspond to the network device of the second trunk group-side, forwarding the frame from the first network device to a network device of the first side to which the frame is destined-determining an alternative destination port for the frame and forwarding the frame to the alternative destination port.

2. (Cancelled)

3. (Cancelled)

4. (Cancelled)

5. (Cancelled)

6. (Currently Amended) A network device for handling frames, comprising:

receiving means for receiving a frame at a first network device of an assembly of network devices of a trunk group, with the assembly of devices divided into a first side and a second side, wherein the assembly includes a plurality of high-speed links connecting the first side to the second side, and wherein the first network device ~~[[being]]~~ is on the first side;

~~examining means for examining the received frame to determine whether the frame is destined for a member of a specific trunk group;~~

determining means for determining whether the frame is destined for a network device of the first side or a second network device of the second side ~~whether a destination device identifier for the frame corresponds to one of the network devices on the second side; and~~

forwarding means for forwarding, if the frame is destined for a second network device of the second side, the frame to the second side via a first high-speed link of the plurality of high-speed links connecting the first side to the second side, wherein the first high-speed link is local to either the first network device or the second network device, ~~a trunk group destination port that is local to the network device if the frame is destined for a member of the specific trunk group and the destination device identifier corresponds to a network device of the second side;~~ and

if the frame ~~[[does]]~~ is not destined for one of the network devices ~~correspond to the network device~~ of the second side, forwarding the frame from the first network device to a network device of the first side to which the frame is destined ~~determining an alternative destination port for the frame and forwarding the frame to the alternative destination port.~~

7. (Currently Amended) A network device as recited in claim 6, wherein the examining means ~~comprises means for examining of the received frame~~ comprises examining the received

frame to determine whether the frame is destined for the member of the specific trunk group of ports providing connections over a high-speed data port interface; forwarding means comprises means for forwarding, if the frame is destined for a second network device of the second side, the frame to a second network device of the first side that includes the first high-speed link that is local to both the second network device of the first side and the second network device of the second side.

8. (Currently Amended) A network device as recited in claim 6, wherein the ~~examining means comprises means for examining the destination device identifier contained in a header of the frame;~~ forwarding means comprises means for forwarding, if the frame is destined for a second network device of the second side, the frame via the first high-speed link to a third network device of the second side that includes the first high-speed link, and forwarding the frame to the second device of the second side via one or more expansion links connecting the third device to the second device.

9. (Currently Amended) A network device as recited in claim 6, wherein the ~~determining means comprises means for examining the destination device identifier contained in a header of the frame;~~ forwarding means comprises means for forwarding, if the frame is destined for a second network device of the second side, the frame via the first high-speed link to the second network device wherein the first high-speed link is local to both the first network device and the second network device.

10. (Currently Amended) A network device as recited in claim 6, wherein the ~~forwarding means comprises means for forwarding, the frame over an interconnected Gigabit port of the network device wherein the destination port is the member of the specific trunk group and the destination device identifier indicates one of the network devices on the second side; if the frame is not destined for one of the network devices of the second side, the frame from the first network device to a network device of the first side to which the frame is destined via one or more expansion links.~~

11. (Cancelled)

12. (Cancelled)

13. (Cancelled)

14. (Cancelled)

15. (Cancelled)

16. (New) The method of claim 1 wherein the receiving comprises:

receiving the frame at the first network device, and wherein the plurality of links include a plurality of high speed links connecting a Gigabit port on a device of the first side to a Gigabit port on a device of the second side.

17. (New) The method of claim 1 wherein the determining comprises:

determining, based on a source chip identifier in a header of the frame, whether the frame is destined for a network device of the first trunk group or the second trunk group.

18. (New) The method of claim 1 wherein if the frame is destined for the second network device, the forwarding comprises:

forwarding the frame to a second network device of the first side, wherein the second network device of the first side includes a port to the first high-speed link connecting the first side to the second side.

19. (New) The method of claim 1 wherein if the frame is destined for the second network device, the forwarding comprises:

determining that the first high-speed link is local to the first network device; and

forwarding the frame from the first network device to the second network device via the first high-speed link.

20. (New) The method of claim 1 wherein if the frame is not destined for a network device of the second side, the forwarding comprises:

forwarding the frame to the network device of the first side to which the frame is destined via one or more expansion links connecting the first device to the network device of the first side to which the frame is destined.

21. (New) The method of claim 1 wherein if the frame is destined for a second network device of the second trunk group, selecting a path from a plurality of paths by which to forward the frame from the first network device to the second network device, wherein the selected path is associated with the least amount of latency of the plurality of paths.

22. (New) The method of claim 21, wherein the first high-speed link includes a higher throughput than the expansion links.

23. (New) The method of claim 1, wherein receiving a frame at a first network device comprises, receiving the frame at the first network device that is a member of a third trunk group that includes the first trunk group and the second trunk group, and wherein the third trunk group is arranged to increase a utility of the network devices of the first trunk group and the second trunk group.

24. (New) A network device configured to:

receive a frame, the network device being a member of a first trunk group on a first side of an assembly of network devices;

determine that the frame is destined for a second network device that is a member of a second trunk group on a second side of the assembly;

determine a path to reduce latency in forwarding the frame from the network device to the second network device via a high-speed port connecting a first side to a second side, and expansion ports connecting network devices located on the same side to each other, wherein the high-speed ports have a higher transfer rate than the expansion ports; and

forward the frame, based on the path, to a network device of the first side via the expansion ports, for transmission to the second network device via a first high-speed port of the high-speed ports connecting the network device of the first side receiving the frame to the second network device.

25. (New) The network device of claim 24 wherein the high-speed ports are Gigabit ports.

26. (New) The network device of claim 24 wherein the network device configured to determine the path is configured to determine how to forward the packet to the second network device based on a physical location of the network device relative to the second the network device.

27. (New) The network device of claim 24 wherein the network device is configured to determine that the frame is destined for the second network device based on a source chip identifier of the frame.

28. (New) The network device of claim 24 wherein the network device does not rely on a hash result to determine that the frame is destined for the second network device.

29. (New) The network device of claim 24 wherein the network device configured to determine a path is configured to determine the path wherein the first side includes at least two high-speed ports connecting the first side to the second side, one of which is local to the second network device, and the path includes forwarding the frame over the high-speed port local to the second network device.

REMARKS

Applicant has carefully reviewed and considered the Office Action mailed on December 10, 2008, and the references cited therewith.

Claims 2-5, and 11-15 have been cancelled, claims 1 and 6-10 have been amended and claims 16-29 have been added. No new matter has been added. As a result, claims 1, 6-10 and 16-29 are now pending in this application, with claims 1, 6 and 24 being independent.

Rejection of the Claims Under 35 U.S.C. § 102 – Kalkunte

Claim 1, 3-6, 8-11 and 13-15 stand rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 2002/0027908 to Kalkunte et al. (hereinafter “Kalkunte”). Applicant has amended the claims to obviate this rejection.

Claim 1, as amended, recites:

A method of handling frames in a network device, said method comprising:
receiving a frame at a first network device of an assembly of network devices divided into a first trunk group on a first side and a second trunk group on a second side, wherein the assembly includes a plurality of high-speed links connecting the first side to the second side, and wherein the first network device is on the first side and a member of the first trunk group;

determining whether the frame is destined for a network device of the first trunk group or a second network device of the second trunk group;

if the frame is destined for the second network device, forwarding the frame to the second side via a first high-speed link of the plurality of high-speed links connecting the first side to the second side, wherein the first high-speed link is local to the second network device; and

if the frame is not destined for one of the network devices of the second trunk group, forwarding the frame from the first network device to a network device of the first side to which the frame is destined. (emphasis added).

Applicant respectfully requests reconsideration and withdrawal of the rejection because Kalkunte fails to describe or suggest “assembly of network devices divided into a first trunk group on a first side and a second trunk group on a second side” or “if the frame is destined for a second network device of the second side, forwarding the frame to the second side via a first link of the plurality of links connecting the first side to the second side, wherein the first link is local to the second network device” (emphasis added), as recited in claim 1 as amended.

Kalkunte, as cited by the Office Action p.3-4, only discloses that “... a particular trunked port of the trunk group is determined and the incoming data packet is forwarded thereto” and that “... selecting the particular trunk port [is] based on the hash value.” Kalkunte fails to disclose a

first side and a second side, links connecting the first side to the second side, and/or forwarding a frame via link local to the second device to which the frame is destined. Applicant further submits that Varansi, as cited by the Office Action, either alone or in combination with Kalkunte fails to remedy the shortcomings of Kalkunte as described above.

Applicant respectfully submits that independent claims 6 and 23 include features similar to those discussed above with regard to independent claim 1 and are allowable for at least similar reasons. Applicant further submits that claims 8 and 9, by virtue of their dependence on independent claim 6, overcome the rejection for at least similar reasons as those discussed above. Applicant further submits that claims 3-5 and 11-15 have been cancelled and requests the rejection be withdrawn with respect to these claims.

Rejection of the Claims Under 35 U.S.C. § 103 – Kalkunte in view of Varansi

Claims 2, 7 and 12 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Kalkunte in view of U.S. Patent Pub. No. 2005/0105904 to Varansi et al. (hereinafter “Varansi”). Applicant respectfully submits that claims 2 and 12 have been cancelled and that claim 7, as amended, overcomes this rejection based at least on its dependence of independent claim 6, as amended for the reasons discussed above.

Conclusion

Applicant respectfully submits that the claims 1, 6-10 and 16-29 are in condition for allowance and requests withdrawal of the claims as rejected above and that the claims be allowed.

No fees are believed to be due, however, if necessary, please charge any additional fees or credit overpayment to Deposit Account No. 50-3521.

Respectfully submitted,

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202-470-6455

Date: April 10, 2009

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